

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
25 March 2004 (25.03.2004)

PCT

(10) International Publication Number  
WO 2004/024815 A1

(51) International Patent Classification<sup>7</sup>: C08L 33/20,  
C08F 220/44, 220/58, B01D 71/40, A61L 27/16

(21) International Application Number:  
PCT/EP2003/009885

(22) International Filing Date:  
5 September 2003 (05.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02090326.6 11 September 2002 (11.09.2002) EP

(71) Applicant (for all designated States except US):  
GKSS FORSCHUNGSZENTRUM [DE/DE];  
Max-Planck-Strasse 1, 21502 Geesthacht (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): GROTH, Thomas  
[DE/DE]; Scherenbergstrasse 24, 10439 Berlin (DE).  
ALBRECHT, Wolfgang [DE/DE]; Lichterfelder Allee  
79, 14513 Teltow (DE). SEIFERT, Barbara [DE/DE];

Büschingstrasse 2, 10249 Berlin (DE). MALSCH, Gün-  
ter [DE/DE]; Striewitzweg 31a, 14513 Teltow (DE).  
MCNIVEN COURTNEY, James [GB/GB]; 8 Maple  
Drive, Lenzie, Kirkintilloch, Glasgow G66 4EA (GB).  
GAYLOR, John, David, Stewart [GB/GB]; 14 Milver-  
ton Road, Giffnock, Glasgow G46 7JN (GB). GRANT,  
Mary, Hellen [GB/GB]; 45 Burnbrae Avenue, Bearsden,  
Glasgow G61 3ET (GB).

(74) Agents: SCHNEIDER, Henry et al.; Anwaltskanzlei  
Gulde Hengelhaupt Ziebig & Schneider, Schützenstrasse  
15 - 17, 10117 Berlin (DE).

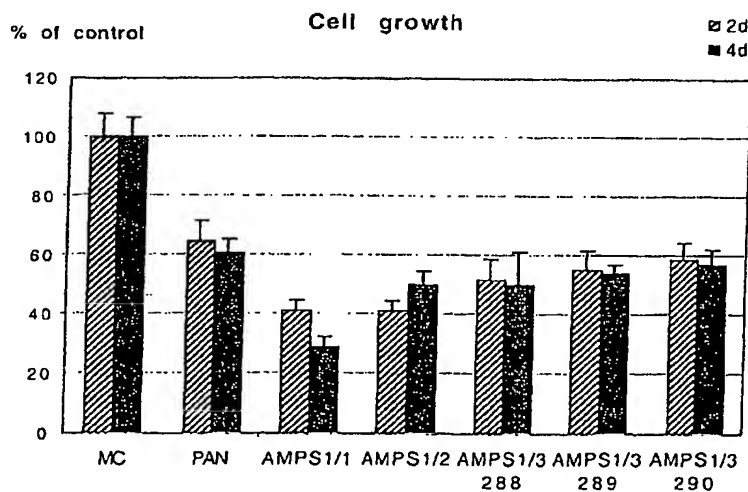
(81) Designated States (national): CA, JP, US.

Declaration under Rule 4.17:  
— of inventorship (Rule 4.17(iv)) for US only

Published:  
— with international search report  
— before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: POLYMERIC COMPOSITION, MATERIAL PRODUCED THEREOF AND THEIR APPLICATIONS



(57) Abstract: The invention relates to a novel polymer composition comprising at least one copolymer constituted of acrylic (AC) monomer units and of at least one water-soluble comonomer unit, which is preferably 2-acrylamido-2-methyl-propane sulfonic acid (AMPS). The composition is used to produce materials, such as membranes, film or surface coatings, that are suitable as highly tissue compatible supports for epithelial cells, such as hepatocytes. The materials are suitable to be used in a bioartificial liver, where they work as separating membrane and carrier for adhesion-dependent tissue cells. As an example it is described how selectively permeable membranes are formed by a phase inversion process from these acrylic copolymers with varying content of 2-acrylamido-2-methyl-propane sulfonic acid (AMPS) and how they interact with liver cells to construct a biohybrid organ for liver replacement.

WO 2004/024815 A1